

REMARKS:

1) In section 7 on page 3 of the Office Action, the Examiner has applied a new reference US Patent 5,955,391 (Kameda et al.) in a rejection, but this reference has not been listed on the Examiner's Notice of References Cited (Form PTO-892). Therefore, please issue a Supplemental Form PTO-892 citing US Patent 5,955,391 (Kameda et al.).

2) The claims have been amended as follows.

Independent claim 16 has been amended to incorporate subject matter from prior claim 17, as well as clarifications based on page 7 lines 1 to 21.

Claim 17 has been canceled.

Claims 18 and 20 have been amended for better conformance with the amended independent claim.

New claims 22 to 34 have been added. The new claims have been drafted "from the ground up" as a fresh approach at covering inventive subject matter, with somewhat different claim format, style and terminology in comparison to the original claims, which were a direct translation of the foreign-language claims of the PCT international application. The new claims are better adapted to typical US claiming practices. The new claims are supported by the original disclosure as shown in the following table, and do not introduce any new matter.

new claims	22	23	24	25	26	27	28
original support	CI 16, 17, 18; P 7 L 1-21	CI 16	P 4 L 19-22	P 4 L 18	CI 16	CI 18, 19; P 5 L 14-15 P 7 L 1-21	CI 18, 19; P 5 L 14-15 P 7 L 1-21

new claims	29	30	31	32	33	34
original support	P 3 L 10-12 P 5 L 9-12	Fig. 2	P 7 L 22-26	CI 20	P 7 L 9-21	P 7 L 9-21

In view of the above original disclosure support, the claim amendments and the new claims do not introduce any new matter. Entry and consideration thereof are respectfully requested.

- 3) Referring to section 5 on page 2 of the Office Action, the rejection of claims 16 and 19 to 21 as anticipated by US Patent 5,371,050 (Belitskus et al.) has been obviated by the present amendment.

Namely, currently amended claim 16 now incorporates subject matter from prior claim 17, which was not subject to this rejection. Therefore the rejection does not apply to present claim 16.

For example, Belitskus et al. do not disclose performing a coating step in a reactive atmosphere containing a reactive gas to form the coating. Furthermore, Belitskus et al. do not disclose, during the coating step, to introduce atoms of the reactive gas into the titanium or the titanium based alloy so that the reactive gas atoms react with the titanium or the titanium based alloy to form ceramic particles embedded in the coating. This is the most significant feature of the present invention, for example as discussed at page 7 lines 1 to 21 of

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the specification. Contrary thereto, Belitskus et al. disclose a method of infiltrating a slurry of alumina and aluminum phosphate into a fiber substrate coated with a metal. The fibers are preferably coated with nickel by an electroless plating process, or alternatively titanium (among a long list of possible alternatives) may be used as the coating metal, and the coating process may involve physical vapor deposition using evaporation of the metal from an electron beam source or thermal source (col. 9 line 53 to col. 10 line 15). The Examiner has pointed out that *"Belitskus does not disclose that the coating takes place in a reactive atmosphere under nitrogen"* (page 3 of the Office Action).

In view of the above direct distinctions, Belitskus et al. do not anticipate currently amended claim 16 and its dependent claims.

New independent claim 22 is directed to an inventive method involving a step of coating fibers with a coat of a titanium-based matrix material in an atmosphere containing a reactive gas such that atoms of the reactive gas are introduced into the coat of titanium-based matrix material. The method of claim 22 further comprises a step of reacting the atoms of the reactive gas in the coat with atoms of the titanium-based matrix material to form ceramic particles thereof embedded in the coat. As discussed above in connection with claim 6, Belitskus et al. do not disclose these steps of claim 22. Therefore, claim 22 and its dependent claims are not anticipated by Belitskus et al.

For the above reasons, the Examiner is respectfully requested to withdraw the anticipation rejection applying Belitskus et al.

- 4) Referring to section 7 on page 3 of the Office Action, the rejection of claims 17 and 18 as obvious over Belitskus et al. in view of US Patent 5,955,391 (Kameda et al.) is respectfully traversed.

As discussed above, currently amended claim 16 incorporates subject matter from prior claim 17, as well as further features and clarifications based on the specification.

The Examiner has pointed out that "*Belitskus does not disclose that the coating takes place in a reactive atmosphere under nitrogen*" (page 3 of the Office Action). In this regard, the Examiner has cited and applied Kameda et al. for allegedly disclosing SiC fibers coated with a layer of titanium nitride in a reactive atmosphere under nitrogen via sputtering.

However, Kameda et al. expressly aim to avoid any reactions with the coating layer. Namely, Kameda et al. disclose the application and use of a barrier layer applied on the outside of the coat layer to suppress reactions (col. 6 lines 54 to 60), namely to suppress reactions with the surrounding environment (col. 6 line 65 to col. 7 line 2, and col. 7 lines 18 to 22). The coat layer may be a layer of carbon or boron nitride, which is thermally stable (col. 7 lines 13 to 18), which is then further coated with the barrier layer for suppressing reactions with the surrounding environment (col. 7 lines 18 to 22). The process of coating the fiber with the coat layer and the barrier

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layer may be a CVD method which is carried out merely in a carrier gas atmosphere such as nitrogen gas, additionally carrying the metal component which is decomposed and precipitated on the surface of the fibers (col. 7 lines 22 to 30). Alternatively, instead of the CVD method with the carrier gas atmosphere, the coating can be applied by a PVD method such as sputtering or ion plating, without mention of any gas atmosphere (col. 7 lines 30 to 35). In any event, the disclosed gas atmosphere is merely a carrier gas, which carries the metal component to be precipitated on the fibers, and there is no indication that a further reaction between reactive gas atoms of a reactive atmosphere and the deposited coating shall take place. In fact, all of the disclosures of Kameda et al. are to be contrary, namely expressly disclosing the provision of a barrier layer to suppress reactions, and the disclosure of merely a carrier gas atmosphere to carry the metal component that is to be precipitated on the fiber (col. 7 lines 18 to 30). There is no indication of adjusting or modifying the parameters so as to carry out a step of reacting atoms of a reactive gas with atoms of the titanium-based coating material.

Therefore, there would have been no suggestion toward using such a reaction step to form ceramic particles of the reactive gas atoms reacted with the titanium-based coating atoms. It is by such a combination of steps that the invention can form ceramic particles embedded in situ in the coating, as the coating is being deposited. Because neither Belitskus et al. nor Kameda et al. disclose or suggest anything about such a combination of

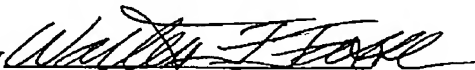
steps, a person of ordinary skill in the art would not have been motivated or enabled to perform modifications toward achieving the present inventive method. The references would not have provided a reasonable expectation of success at achieving a predictable result by carrying out such a combination of steps involving reacting atoms of a reactive gas from a reactive gas atmosphere with atoms of a titanium-based coating material during the coating step, so as to form ceramic particles as a result of this reaction, because the references are silent regarding such a step and any results that could be achieved thereby.

For the above reasons, the inventive method of claim 6 and the inventive method of claim 22 would not have been obvious from a combined view of the prior art. The Examiner is respectfully requested to withdraw the obviousness rejection applying Belitskus et al. in view of Kameda et al.

- 5) Favorable reconsideration and allowance of the application, including all present claims 16 and 18 to 34, are respectfully requested.

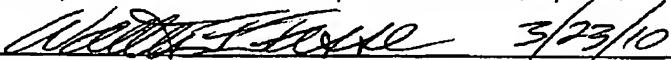
Respectfully submitted,

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